

Amendments to the claims

The following listing of claims replaces all previous listings of claims.

1. (Previously presented) A library of compounds, wherein each compound in the library is bound to an individual support, each support having associated therewith more than one population of semiconductor nanocrystals, each population having a distinct characteristic spectral emission,

wherein each nanocrystal comprises a Group II-VI semiconductor, a Group III-V semiconductor, a Group IV semiconductor, an alloy of a Group II-VI semiconductor and a Group III-V semiconductor, an alloy of a Group II-VI semiconductor and a Group IV semiconductor, an alloy of a Group III-V semiconductor and a Group IV semiconductor, an alloy of a Group II-VI semiconductor, a Group III-V semiconductor, and a Group IV semiconductor, a mixture of a Group II-VI semiconductor and a Group III-V semiconductor, a mixture of a Group II-VI semiconductor and a Group IV semiconductor, a mixture of a Group III-V semiconductor and a Group IV semiconductor, or a mixture of a Group II-VI semiconductor, a Group III-V semiconductor, and a Group IV semiconductor.

2. (Original) The library of claim 1, wherein each nanocrystal member comprises:
a core comprising a first semiconductor material; and
a shell layer overcoating the core, the shell comprising a second semiconductor material having a band gap greater than that of the core,
wherein the first semiconductor material and the second semiconductor material are the same or different.

3. (Original) The library of claim 1, wherein the characteristic spectral emission is a wavelength of emitted light, an intensity of emitted light, or both a wavelength and an intensity of emitted light.

Claims 4-11. (Canceled)

12. (Original) The library of claim 1, wherein each individual support is a bead, a pellet, a disk, a capillary, a hollow fiber, a needle, a solid fiber, a cellulose bead, a pore-glass bead, a silica gel, a polystyrene beads optionally cross-linked with divinylbenzene, a grafted copoly bead, a poly-acrylamide bead, a latex bead, a dimethylacrylamide bead optionally cross-linked with N,N'-bis-acryloyl ethylene diamine, a glass particle coated with a hydrophobic polymer, or a low molecular weight non-cross-linked polystyrene.

13. (Original) The library of claim 1, wherein at least one compound in the library is a polypeptide, an oligonucleotide, or a sugar moiety.

Claims 14-25. (Canceled)

26. (Previously presented) A chemical library comprising a plurality of member chemicals, wherein each member chemical is bound to a support, each support having associated therewith more than one population of semiconductor nanocrystals, each population having a distinct characteristic spectral emission,

wherein each nanocrystal comprises a Group II-VI semiconductor, a Group III-V semiconductor, a Group IV semiconductor, an alloy of a Group II-VI semiconductor and a Group III-V semiconductor, an alloy of a Group II-VI semiconductor and a Group IV semiconductor, an alloy of a Group III-V semiconductor and a Group IV semiconductor, an alloy of a Group II-VI semiconductor, a Group III-V semiconductor, and a Group IV semiconductor, a mixture of a Group II-VI semiconductor and a Group III-V semiconductor, a mixture of a Group III-V semiconductor and a Group IV semiconductor, or a mixture of a Group II-VI semiconductor, a Group III-V semiconductor, and a Group IV semiconductor.

27. (Original) The library of claim 26, wherein at least one member of the library is a polypeptide.

Claims 28-30. (Canceled)

31. (Original) The library of claim 26, wherein each nanocrystal comprises:
a core comprising a first semiconductor material; and
a shell layer overcoating the core, the shell comprising a second semiconductor material
having a band gap greater than that of the core,
wherein the first semiconductor material and the second semiconductor material are the
same or different.

32. (Original) The library of claim 26, wherein the characteristic spectral emission is
a wavelength of emitted light, an intensity of emitted light, or both a wavelength and an intensity
of emitted light.

33. (Original) The library of claim 26, wherein the each support is a bead, a pellet, a
disk, a capillary, a hollow fiber, a needle, a solid fiber, a cellulose bead, a pore-glass bead, a
silica gel, a polystyrene beads optionally cross-linked with divinylbenzene, a grafted co-poly
bead, a poly-acrylamide bead, a latex bead, a dimethylacrylamide bead optionally cross-linked
with N,N'-bis-acryloyl ethylene diamine, a glass particle coated with a hydrophobic polymer, or
a low molecular weight non-cross-linked polystyrene.

Claims 34-36. (Canceled)

37. (Previously presented) A library of polypeptides comprising a plurality of
polypeptides, wherein each polypeptide in the library is bound to an individual support, each
support having associated therewith more population of semiconductor nanocrystals, each
population having a distinct characteristic spectral emission and wherein each nanocrystal
comprises a Group II-VI semiconductor, a Group III-V semiconductor, a Group IV
semiconductor, an alloy of a Group II-VI semiconductor and a Group III-V semiconductor, an
alloy of a Group II-VI semiconductor and a Group IV semiconductor, an alloy of a Group III-V
semiconductor and a Group IV semiconductor, an alloy of a Group II-VI semiconductor, a Group

III-V semiconductor, and a Group IV semiconductor, a mixture of a Group II-VI semiconductor and a Group III-V semiconductor, a mixture of a Group II-VI semiconductor and a Group IV semiconductor, a mixture of a Group III-V semiconductor and a Group IV semiconductor, or a mixture of a Group II-VI semiconductor, a Group III-V semiconductor, and a Group IV semiconductor.

38. (Original) The library of claim 37, wherein each nanocrystal comprises:
a core comprising a first semiconductor material; and
a shell layer overcoating the core, the shell comprising a second semiconductor material having a band gap greater than that of the core,
wherein the first semiconductor material and the second semiconductor material are the same or different.

39. (Original) The library of claim 37, wherein the characteristic spectral emission is a wavelength of emitted light, an intensity of emitted light, or both a wavelength and an intensity of emitted light.